Remarks/Arguments

This Amendment and Response is considered fully responsive to the Office action mailed December 28, 2007. Claims 1- 77 are pending in the application. Claims 1-77 stand rejected. Claims 57 and 58-62 have been amended herein. No claims have been canceled. No new claims have been added. Reexamination and reconsideration are respectfully requested. Furthermore, the Applicants respectfully request reconsideration and withdrawal of the finality of the Office Action.

Claim Objections

The Applicants acknowledge that the prior objection to claim 51 has been withdrawn by the Examiner in view of the prior amendments to claim 51.

Drawings

The Applicants acknowledge that the prior objections to the drawings have been withdrawn by the Examiner in view of the prior amendments to the drawings.

Rejections Under 35 U.S.C. §101

The Applicants acknowledge that the prior 35 U.S.C. §101 rejections to claims 29-56 and 68-72 have been withdrawn by the Examiner in view of the prior amendments to claims 29-56 and 68-72. The Applicants note that the introductory sentence to the Section 101 rejection still refer to claims 29-56 and 68-72, but it appears that this statement is merely a typographical error and that a new Section 101 rejection has been asserted against claims 57-62. If the Undersigned's interpretation of the Section 101 rejection is incorrect, the Office is requested to call the Undersigned so that he can supplement this response.

Claims 57-62 stand rejected under 35 U.S.C. §101 because the claimed invention is purportedly directed to non-statutory subject matter. As an initial matter, the Applicants respectfully assert that the finality of the rejection is premature. According to MPEP 706.07(a) (emphasis added):

> Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on

information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).

The Applicants point out that the Office has introduced a new ground of rejection under Section 101 of claims 57-62, which were neither rejected under Section 101 in the first non-final Office Action, issued 2/28/2007, nor amended by the Applicants in the response to the first non-final Office Action, filed 8/27/2007. Furthermore, no information disclosure statement was filed during the period set forth in MPEP 706.07(a). Accordingly, the new ground of rejection was not necessitated by applicants' amendment of the claims or by submission of an information disclosure statement. For the foregoing reasons, the Applicants request reconsideration and withdrawal of the finality of the rejection of the Office Action issued 12/28/07.

Without acquiescing to the propriety of the Section 101 rejection of claims 57-62, the Applicants have amended claim 57 to recite a processing unit and have amended claims 57, 59-62 to recite either a call graph generator (claim 57) and/or a call graph analyzer (claims 59-62) as executing on the processing unit. The Applicant believes that the amendment overcomes the Office's Section 101 rejection of claims 57-62. As such, withdrawal of the rejection of claims 57-62 under 35 U.S.C. §101 is respectfully requested.

Rejections Under 35 U.S.C. §112

The Applicants acknowledge that the prior rejection under 35 U.S.C. §112, second paragraph, has been withdrawn by the Examiner in view of the prior amendments to claim 51.

Response to Arguments

The Applicants acknowledge the Office's response to Applicants' Arguments submitted in the response to the first non-final Office Action, filed 8/27/07. The Applicants respectfully assert that the Office has failed to establish a prima facie case for rejection under either Section 102 or Section 103, despite the additional arguments provided by the Office in this section of the Office Action.

Generally, the primary cited reference, Rioux, teaches building a control flow model approximated from control flow graphs derived from program source code. The control flow model can be analyzed to identify software flaws, security vulnerability, and performance issues. In contrast, the present application relates to generating a call graph of call paths through input component code based on a simulation involving a runtime security policy, which reside in the

context of rights, load-time security checks, and permissions. Reiterating a main theme of the Applicants' response to first Office Action, which has not been effectively rebutted by the Office's response to the Applicants' initial arguments, Rioux has nothing to do with rights, load-time security checks, or permissions and therefore fails to disclose or suggest the use of a runtime security policy. Rioux addresses identification of operation errors in the code to identify "software flaws, security vulnerability, and performance issues" and makes no reference to and shows no interest in rights or runtime security policies.

In Subsection A, the Office responds to Applicants' argument that Rioux fails to disclose "receiving a runtime security policy". The Office cites a portion of the Applicants' specification in which a runtime security policy is referenced in one implementation of the described technology: "*The rights attached to every piece of code are made explicitly (e.g., according to the origin of the code and evidence attached to the code). This assignment of rights to code and various security checks performed as the code is loaded are referred to as the "runtime security policy"* (page 6, lines 16-20). In fact, there are many references to a runtime security policy in the specification, most providing some characterization of the term in the context of rights, load-time security checks, and permissions. The Applicants respectfully submit that the term "runtime security policy" should be interpreted based on its known usage in the art and the specification as a whole, not based on a single description of "one implementation" from the specification.

Although the Applicants do not acquiesce to the Office's apparent attempt to interpret the term based upon the cited description alone, the Applicants respectfully assert that the reference does not disclose even the characteristics identified in the cited language of the specification – "assignment of rights to code" or any relationship with "rights". The Office cites two portions of Rioux in support of its response, and the Applicants respond to each of the Office's citations to Rioux below:

1. "the loader and unlinker **read ('load') the target executable code into member** (receiving a runtime security policy) and unlink the various segments of code…" (Rioux, col. 3, lines 66-67, emphasis and annotation provided by the Office) – The Applicants strenuously point out that the cited language describes loading executable code, not receiving a runtime security policy. There is no disclosure or suggestion of an assignment of rights. Importantly, there is not even a

disclosure or suggestion of any dependence or relationship to "rights". In addition, the language does not disclose or suggest load-time security checks or permissions in association with the loading of target executable code.

2. "Intermediate representations of modeled executable coed (sic) can thus be **scanned or analyzed for flaws or conditions**, especially including security holes, buffer structure flaws exploitable via 'buffer overflow' attack, **and other known and unknown risk factors.** Such use is of great interest in the software arts today as a means of certifying software as **trusted** and/or determining whether software is safe to operate in mission-critical applications, for example." (Rioux, col 11, lines 3-11, emphasis provided by the Office) – The Applicants point out that neither the cited language nor any other aspect of Rioux relates security to any "rights", load-time security checks, or permissions. Instead, as argued in the Applicants' response to first Office Action, Rioux is concerned only with identifying operational flaws in the executable code that may result in security "holes" caused by the software errors – this bears no relation to use of a runtime security policy.

The Applicants respectfully reassert the arguments from the response to first Office Action. The Office's response to those arguments does not establish or support a prima facie case for rejection in that Rioux does not teach receipt of a runtime security policy and does not teach any characteristic of security relating to "rights". (The term "right" does not appear anywhere in Rioux, other than the copyright notice, and further, the concept of "rights" is not disclosed or suggested in Rioux.) Simply put, the "security concerns" of Rioux are not based on rights or a runtime security policy, and the Office has provided no support for a reasonable interpretation to the contrary.

In Subsection B, the Office is responding to Applicants' argument that Rioux fails to disclose "generating a call graph of call paths through the input component code simulated in combination with at least one symbolic component representing additional arbitrary code that complies with the runtime security policy". The Office cites several portions of Rioux in support of its response. The Office highlights language from Rioux, col. 10, lines 56-67 stating "the model can be easily analyzed for software flaws, security vulnerability, and performance issues", but this language does not disclose or suggest a runtime security policy or simulation of input

component code in combination with a symbolic component that represents arbitrary code that complies with the runtime security policy. Rather than itemizing each of the Office's citations, the Applicants assert that none of these cited portions of Rioux make any disclosure or suggestion of a runtime security policy or rights. Further, the only code referenced in this cited language is the executable code and the original source code – there is no disclosure or suggestion of arbitrary symbolic component that complies with the runtime security policy or simulation of input component code in combination with such a symbolic component. The Applicants respectfully reassert the arguments from the response to first Office Action. The Office's response to those arguments does not establish or support a prima facie case for rejection in that Rioux does not teach "generating a call graph of call paths through the input component code simulated in combination with at least one symbolic component representing additional arbitrary code that complies with the runtime security policy".

In Subsection C, the Office is responding to Applicants' argument that Berg fails to disclose "call paths through the input component code simulated in combination with at least one symbolic component representing additional arbitrary code that complies with the runtime security policy". Despite the Office's reference to its response in Subsection B, the Applicants reiterate their arguments from the first response as well as the arguments with regard to Subsection B – both Rioux and Berg fail to disclose a "runtime security policy", an arbitrary symbolic component that complies with the runtime security policy and simulation of input component code in combination with such a symbolic component.

In Subsection D, the Office is responding to Applicants' arguments that neither Rioux nor Berg discloses "identifying a subset of the call paths in the call graph that satisfy the query." The Office cites several statements in Rioux and Berg in support of its position that the "identifying" operation is disclosed or suggested in one or both of the references. However, none of the cited statements actually support the Office's position.

The Office first cites a statement in Rioux (col. 6, lines 56-60), which includes the language "a first, fitting control flow model is approximated from control flow graphs…", as disclosing "a subset", apparently of call paths in a call graph. However, the cited language in Rioux only discloses approximating a control flow model based on control flow graphs – no subsets of call paths are disclosed or even suggested by this language, particularly a subset of call paths in a call graph that satisfy a query.

The Office cites other statements in Rioux, but none of these statements disclose or suggest the recited "identifying" operation – there are no subsets of call paths disclosed, particularly those that satisfy a query. The cited language includes statements about scanning or analyzing (no queries are disclosed), intermediate representation of modeled executable code, risk factors, certifying software as trusted, etc., but none of these statements have any relevance to the recited "identifying" operation.

In summary, the Applicants respectfully assert that the Office's response to Applicants' arguments in the response to the first Office Action are not on point with the Applicants' written positions and therefore do not rebut the Applicants' arguments. To date, the Office has not shown in Rioux or Berg a runtime security policy, a generation of a call graph of call graphs based on simulation of input code or a symbolic component representing arbitrary code that complies with the runtime security policy.

Rejections Under 35 U.S.C. § 102

Claims 1-4, 27-32, and 55-58 stand rejected under 35 U.S.C. §102(e) as being purportedly anticipated by U.S. Patent No. 7,051,322 to Rioux. The rejection is respectfully traversed.

The Applicants reiterate the arguments from the response to the first non-final Office Action, incorporating those arguments by reference, and supplement these arguments with the arguments in the previous section relating to the Office's response to Applicants' arguments.

In summary of those combined arguments, Rioux fails to disclose or suggest recited features of claims 1, 29, and 57, including receipt or use of a "runtime security policy," which resides in the context of "rights", load-time security checks, and permissions and is a well known term of art in software. Instead, Rioux discloses analyzing call paths derived from source code to detect operational defects of the source code that can result in software flaws, security vulnerability, and performance issues but fails to disclose or suggest any receipt or use of a runtime security policy.

Furthermore, although Rioux discloses generating control flow graphs through source code and analyzing these graphs based on a control flow model, Rioux fails to disclose generating a call graph of call paths through input component code simulated in combination with at least one symbolic component representing additional arbitrary code that complies with the runtime security policy. Rioux does not contemplate a runtime security policy, access rights,

permissions, load-time security checks, or simulation of the source code in combination with a security policy-compliant symbolic component.

The Office has added some new text to its Section 102 rejection language, which has been taken almost entirely from the Office's response to Applicant's arguments. As such, these new text in the Section 102 rejection has been fully addressed in the previous section of this response. Accordingly, Applicants assert that Rioux fails to anticipate or make obvious the invention of claims 1, 29, and 57. Allowance of claims 1, 29, and 57 is respectfully requested.

Claims 2-4, 27, and 28 depend from claim 1, claims 30-32, 55, and 56 depend from claim 29, and claim 58 depends from claim 57. Claims 1, 29, and 57 are believed to be allowable based on the foregoing arguments. Accordingly, claims 2-4, 27, 28, 30-32, 55, 56, and 58 are believed to be allowable for at least the same reasons as their base claims. Therefore, allowance of claims 2-4, 27, 28, 30-32, 55, 56, and 58 is respectfully requested.

Rejections Under 35 U.S.C. §103(a)

Claims 5-26, 33-54 and 59-77 stand rejected under 35 U.S.C. §103(a) as being purportedly unpatentable over Rioux in view of U.S Patent Application 2005/0010806 A1 to Berg, et al. ("Berg"). The Applicants respectfully traverse the rejections.

Claims 5-26 depend from claim 1, claims 33-54 depend from claim 29, and claims 59-62 depend from claim 57. Claims 1, 29, and 57 are believed to be allowable based on the foregoing arguments. Accordingly, claims 5-26, 33-54, and 59-62 are believed to be allowable for at least the same reasons as their base claims. Therefore, allowance of claims 5-26, 33-54, and 59-62 is respectfully requested.

Furthermore, the Applicants reiterate the arguments from the response to the first non-final Office Action, incorporating those arguments by reference, and supplement these arguments with the arguments in the previous section relating to the Office's response to Applicants' arguments.

In summary of those combined arguments, both Rioux and Berg fail to disclose or suggest recited features of claims 63, 68, and 73, including receipt or use of a "runtime security policy," which resides in the context of "rights", load-time security checks, and permissions and is a well known term of art in software. Furthermore, as argued above, both Rioux and Berg fail to disclose or suggest identifying a subset of the call paths of the call graph recited in claims 63, 68, and 73 – there is no teaching of subsets of such call paths.

Claims 64-67 depend from claim 63, claims 69-72 depend from claim 68, and claims 74-77 depends from claim 73. Claims 63, 68, and 73 are believed to be allowable based on the foregoing arguments. Accordingly, claims 64-67, 69-72, and 74-77 are believed to be allowable for at least the same reasons as their base claims. Therefore, allowance of claims 64-67, 69-72, and 74-77 is respectfully requested.

Conclusion

The Applicants have fully responded to each and every objection and rejection in the Office action dated December 28, 2007 and believe that claims 1-77 are in a condition for allowance. Therefore, the Applicants respectfully request that a timely Notice of Allowance for claims 1-77 be issued in this case.

This Amendment and Response to Office Action is submitted with a petition and fee for a three-month extension. The Applicants believe no other fees or petitions are due with this filing. However, should any such fees or petitions be required, please consider this a request therefor and authorization to charge Deposit Account No. 50-0463 as necessary.

If the Office believes any issues could be resolved via a telephone interview, the Office is invited to contact the Undersigned at the telephone number listed below.

Date: 02/14/2008

Respectfully submitted,

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